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ABSTRACTS
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(Pages refer to the Japanese originals of this volume unless otherwise noted.)

Untersuchungen über die Beziehungen von Bataten zur Alkoholprodukten. (VI.)

(SS. 819～826).

Von K. SUEMATU, M. UTIKOSI und T. MATUMURA.

(The Institute of Chemical Industry, Government-General of Taiwan, Nippon;
Received April 13, 1942.)

On the Manufacture of Acetone and Butanol by Fermentation. (4).

(pp. 827～834)

By H. OKEDA, N. SOWA, A. WATABE, and Y. HASHIMOTO.

(Nippon Soda Co. Ltd.; Received March 16, 1942.)

Comparative Study on Chemical Compositions of Different Parts of Soy Beans.

(pp. 835～842)

By Kenzo NAKAJIMA and Sei-iti SAKURADA.

(Sugiyama's Research Institute for Industrial Chemistry;
Received April 24, 1942.)

Chemical compositions, distributions of proteins of different solubility and properties of oil of soy beans (mixed varieties) produced in Chien-tao, Eastern Manchuria, were compared with one another in respect to different parts of beans. Of three different parts of cotyledon, center, middle and surface zones, the first was richest in oil and poorest in protein and the third was poorest in oil and richest in protein. The hilum side or embryo side was richer in protein and poorer in oil, and the percent of water soluble protein was higher and that of insoluble protein was lower than in the corresponding opposite side. The iodine value of oil extracted from embryo was 150. The iodine value of oil extracted from the center part of cotyledon was higher than that obtained from surface part The center part of cotyledon was much more easily pulverised than the surface part. From the difference of this physical property and the results of comparative analyses, the supposition that the length of cells or protein molecules in the center part of cotyledon is shorter than that in the surface part is deduced according to Staudinger's theory.

Studies on the Industrial Hydrolysis of Whale Meal.

(pp. 843~851)

By Osamu KITAYAMA.

(Chemical Laboratory, Kwansai Daini Amino Acids Production, Co., Ltd., Sakosi, Hyogo-ken;
Received May 15, 1942.)

Studies on the industrial hydrolysis with HCl for whale meal were made, and results were as follows:—

1. The necessary HCl concentration is over 15% solution for the successful hydrolysis.
2. The time required varies according to the temperatures, 6 h. at 120°, and 3 h. at 130°C. The thermal coefficient may be about 2.
3. Hydrolyzing affects are related to the absolute quantities of HCl against proteins; about 35% for the perfect industrial hydrolysis.
4. If hydrolyzing temperature comes up to 150°, amino nitrogen is decreased and a bitter taste is obtained.

Colloid-Chemical Studies on the Soluble Alginate (II.)

Soluble Alginate as a Protecting Colloid.

(pp. 852~854)

By Noboru SUZUKI.

(The Hakodate College of Fisheries;
Received May 18, 1942.)

The protecting power of soluble alginate against the formation of copper-sol, and its gold number were studied, being compared with those of agar-agar and tragacanth-gum.

The results were summarized as follows.

I. The protecting power of sodium alginate was independent of the amount of added hydrazine hydrate. When a sufficient amount of hydrazine hydrate was used the protecting power of the colloid could be represented by the minimum amount of the protecting colloid forming the copper-sol.

II. The protecting power of sodium alginate against the formation of copper-sol was superior to those of agar-agar and tragacanth-gum, while the protecting power against gold-sol given in gold number of alginate was inferior to those of others.

Studies on Digestion of Imported Rice. (II).

(pp. 855∼865)

By T. CHACHIN and M. KUBO.

(Municipal Hygenic Laboratory in Osaka; Receivel January 16, 1942.)

On the Composition of Forest Humus Layer (H Layer.)

(pp. 866∼868)

By R. KAWASHIMA, M. NAGATA and G. SUYAMA.

(Agr. Chem. Laboratory, Kyushu Imp. University; Received June 1, 1942.)

Functional Studies on Soils. (LX).

(pp. 869∼872)

By MISU-Hideo.

(Agricultural Experiment Station, Tyōsen; Received March 23, 1942.)

The Influence of Copper Sulphate Solution upon the Basal Metabolism of White Rat

(pp. 873∼874)

By Tetutaro TADOKORO and Jizō HASHIMOTO.

(Hokkaido Imperial University; Received April 17, 1942.)

Separation and Identification of Fatty Acids. Part 8.

Preparation of Ricinoleo- and Ricinoelaido-hydroxamic Acid and Pure Ricinoleic Acid.

(pp. 875~878)

By H. Yukawa and Y. Inouye.

(Biochem. Lab., Dept. of Agriculture, Kyoto Imperial University;
Received June 8, 1942.)

It has hitherto been known that the best preparation method of pure ricinoleic acid is the Ba-salt-ethanol method. The authors, however, prepared a pure sample by simpler procedures directly from castor oil through the hydroxamic acid derivative, of which the method of preparation has been already reported in these serial papers.

Ricinoleohydroxamic acid is a cluster of small white needles, m. p. 65.5°C, and 28 g. of the acid was obtained from 46.5 g. of castor oil. Ricinoelaidohydroxamic acid was also prepared from ricinoelaidic acid which was derived from ricinoleic acid by the action of nitric acid, m. p. 88.5~89.0°C, needles. And the hydroxamic acids were treated with ethanol-sulphuric acid in the current of carbon dioxide as the authors' usual method and pure free acids were recovered. Ricinoleic acid ethylester, iodine value 77.4, saponification value 171.0, acetyl value 152.4; Ricinoelaidic acid, m. p. 52.5~53°, neutralization value 187.2, iodine value 84.6.

Microbiological Studies on Meat and Meat Products. Part I.

Classification of the Proteolytic Bacteria Isolated from Sausages.

(pp. 879~884)

By Yuji Sasaki and Masayuki Nakane.

(Applied Mycological Laboratory, Hokkaido Imperial University;
Received May 19, 1942.)

The authors isolated twelve strains of bacteria from putrefid sausages, and classified them into four species: *Micrococcus caseolyticus*, *Micrococcus botulinus* n. sp., *Flavobacterium esteroaromaticum* and *Bacillus cereus*. They decompose the proteins of meat, producing hydrogen sulfide.

One of the four, *M. botulinus*, is a new species: spherical, 0.9~1.5 μ in diameter, Gram-positive, nitrites produced from nitrates, gelatin liquefied, and milk acid but not coagulated and not peptonized.

F. esteroaromaticum is a fruity aroma producer.

The optimum temperature for their growth is about 31°C. *M. caseolyticus*, *M. botulinus* and *F. esteroaromaticum* can grow at 3~5°C., but cannot at 50°C. *B. cereus* cannot grow at both temperatures.

The optimum ranges of hydrogen ion concentrations for their growth are between pH 6.6 and 7.6, and the limits are pH 5.8 and 9.0.

M. caseolyticus, *M. botulinus* n. sp. and *F. esteroaromaticum* are killed by heating for 5 min. at 60°C., while *B. cereus* survives 100°C. for 30 min.

The growth of *M. caseolyticus* and *F. esteroaromaticum* are inhibited by addition of 10% sodium chloride to the nutrient agar. 15% of salt prevents the growth of *B. cereus*. *M. botulinus* n. sp. is a halotolerant bacterium, growing readily on the nutrient agar containing 25% of sodium chloride.

On Soil-microorganisms in China. (1).

Occurrence of Azotobacter in North China and Inner Mongolia.

(pp. 885～888)

By Kinsi SUMINOE.

(Tokyo Agricultural University; Received July 16, 1942.)

Among 80 samples of soil in North China and Inner Mongolia studied, Azotobacters were found in 79. Az. chroococcum is widely distributed. In some samples Az. vinerandii was found. Two new types of Azotobacter were also found. One type produces brown colour like Az. chroococcum, but the colouring-matter is water-soluble, on which point it being different from Az. chroococcum. The other type does not grow on Aschby's mannit media, but grows when glucose is used instead of mannit. These are special natures of this type distinguishing from Azotobacters hitherto known.

Chemical Researches on the Utilisation of the Tropical Forest Products. Part I.

Studies of Pulping of Wattle Wood.

(pp. 889～896)

By M. SHIKATA, I. TACHI, Y. KIMURA, and Y. OKADA.

(Dept. of Agriculture and Chemical Institute, Kyoto Imperial University;
Received May 21, 1942.)

Chemische Bestimmung von Vitamin B₂ in Hefe.

(SS. 897～902)

Von Makoto ODA.

(Laboratorium von Meiji-Seito & Co. Ltd., Tokio. Eingegangen am 29. Mai, 1942.)

On the Amylase of Rhizopus Species.

(pp. 903∼911)

By Toshinobu Asai and Shin-ichiro Matsumoto.

(Agricultural Chemical Laboratory, Tokyo Imperial University;
Received April 11, 1942.)

The relative activities of the amylase of thirty-nine species of Rhizopus were investigated. *Rh. javanicus* Takeda and *Rh. semarangensis* Takeda, the former belonging to a dry, air-mycelium developing group, the latter belonging to a wet, scarcely air-mycelium developing type, were selected as having the strongest amylolytic power. The opt. pH and the opt. temperature of the amylase of *Rhizopus* mentioned above were as follows:

	Rh. javanicus Takeda		Rh. semarangensis Takeda	
Liquefying power	pH=5.0, 60°C	pH=5.9, 50°C	pH=4.5, 60°C	pH=6.3, 55°C
Dextrinising power	pH=4.5, 50°C		pH=4.5, 50°C	
Saccharifying power	pH=4.4, 55°C	pH=5.5, 55°C	pH=4.2, 55°C	pH=5.5, 55C°

From the appearance of the two different optimum zones in both liquefying and saccharifying powers, the existence of α- and β-amylase was suggested as already proved by Tokuoka for *Aspergillus Oryzae*.

Lastly the authors investigated the influence of shaking culture on the activity of mould amylase and it was found that *Rh. javanicus* Takeda was strongly activated in its amylolytic power by that process.

Chemical Researches on the Dyeing of "Oshima-Tsumugi." Part II.

On the Dyeing Tannins from *Rhaphiolepsis Umbellata*.

(pp. 912∼914)

By Kotaro Nishida.

(Laboratory of Agricultural Chemistry, Kagoshima Agricultural College;
Received April 27, 1942.)

On a New Polypeptide Isolated from Eisenia Bicyclis. (Part IV.)

A Study of the Chemical Structure of Eisenin. (3)

(pp. 915∼919)

By Toshihiko Oohira.

(Ueda Imperial College of Sericulture and Silk-industry;
Received June 1, 1942.)

It has been communicated, in the previous paper, that *l*-pyroglutamyl-*d*-

glutaminyl-*d*-alanine may be given as the chemical structure of eisenin, especially from the confirmed fact that eisenin molecule consists of *l*-pyroglutamyl-*d*-glutamic acid monoamide and *d*-alanine.

Additional data that the actual structure of eisenin can be definitely stated, have now been obtained and in the present paper further work will be reported.

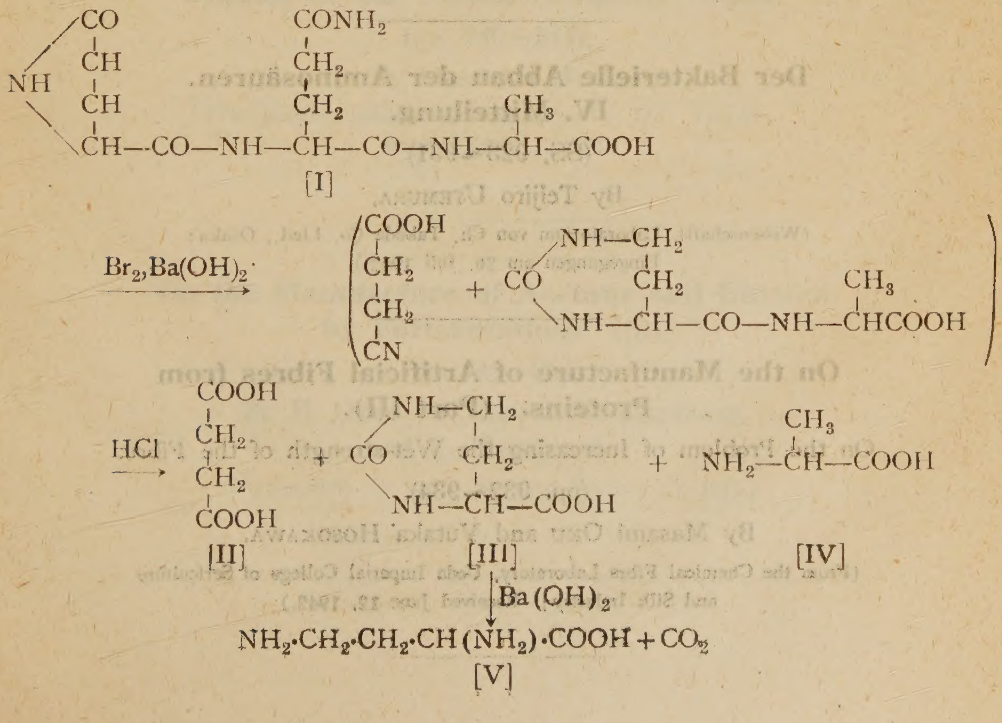
Eisenin was treated with brom and barium hydroxide solution according to Hofmann's decomposition which was adopted by P. Karrer and his collaborators for the preparation of *d*-α,γ-diaminobutyric acid from acetyl-*d*-glutamine.

After a complete hydrolysis of the reaction product, glutamic acid, alanine [IV], succinic acid [II] and a new beautifully crystallized substance were obtained. However, *d*–α,γ–diaminobutyric acid, which was expected to be produced also from eisenin, was not obtained.

The new crystal has the composition $C_5H_8O_3N_2$, melts at 201～2° followed by decomposition with effervescence and is soluble in water and alcohol, but insoluble in ether. The crystal contains one free carboxyl group which is determined by titration with 0.1 *N* barium hydroxide solution. On hydrolysis with concentrated barium hydroxide solution, it yields a syrupy basic substance which gives ninhydrin reaction contrary to the original substance.

The monooxalate and dibenzoate were obtained in colourless crystals from the syrupy substance mentioned above. It was found that these derivatives were completely identical with the same derivatives prepared from *dl*–α,γ–diaminobutylic acid [V] synthesised by Fischer's methods.

The author suggests, therefore, that hexahydropyrimidine –2–on–6–carboxylic


[I]
$Br_2, Ba(OH)_2$
HCl
[II]
[III]
[IV]
$Ba(OH)_2$
$NH_2 \cdot CH_2 \cdot CH_2 \cdot CH(NH_2) \cdot COOH + CO_2$
[V]

acid [III] may be given as the chemical structure of the new crystal yielded by of Hofmann's decomposition of eisenin.

All these reactions in this experiment may be shortly expressed by the following scheme (p. 75):

From these results it is concluded that eisenin may be a polypeptide which is surely denoted by *l*-pyroglutamyl-*d*-glutaminyl-*dl*-alanine [I] as its actual chemical structure.

Studies on the Synthetic Nitrogeneous Fibres. (Part 2.)

(pp. 920～922)

By Shûiku Sasaki and Masato Miyauti.

(Sericultural Chemical Institute, Department of Agriculture, Kyûshû Imperial University;
Received June 4, 1942.)

β-Amino-ethylalcohol was mixed with one of various dicarboxylic acids, e. g., oxalic, succinic, adipic, azelaic, or sebacic acids in equimolecular proportion, and polymerized at high temperature and low pressure. Among the polymers synthetized as above mentioned, polyamide-ethylsebacate, of which the structural unit is considered to be $[-OOC(CH_2)_8CONH(CH_2)_2-]$, has a property capable of forming an useful fibre.

This paper deals with the method of the polymerization and some properties of the polyamide-ethylsebacate.

Der Bakterielle Abbau der Aminosäuren.
IV. Mitteilung.

(SS. 923～931)

By Teijiro Uyemura.

(Wissenschaftl. Laboratorium von Ch. Takeda Co. Lted., Osaka:
Eingegangen am 20. Juli 1942.)

On the Manufacture of Artificial Fibres from Proteins. (Part III).

On the Problem of Increasing the Wet-strength of the Fibre.

(pp. 932～934)

By Masami Oku and Yutaka Hosokawa.

(From the Chemical Fibre Laboratory, Ueda Imperial College of Sericulture and Silk Industry;
Received June 12, 1942.)